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## THE ACADEMICIAN.

NO. XXII.

Necessaria pueris, jucunda senibus.

QUINTILIAN.

Fastigia spectantur, latent fundamenta,—Non sunt contemnenda quasi parva, sine quibus magna constare non possunt.—Nec si quid discere satis non est, ideo necesse non est.

QUINTILIAN.

*"The roofs of buildings are seen by every body, while the foundations escape notice.—Things are not to be despised as little, without which great ones cannot be produced.—Nor are we to reject any thing as unnecessary, because it is not of itself sufficient, and is only conducive to some other purpose."*

*The great and leading principle of great grammar schools is, to lay a FIRM AND DURABLE FOUNDATION IN GRAMMAR.*

DR. KNOX.

IN our preceding numbers, we have spoken of the method of teaching youth the meaning and application of terms, and endeavoured to show the absurdity of pupil's learning the signification of *words abstractly*, or as they are commonly arranged in the columns of by far, the greater part of spelling books. In this number, we shall make a few observations of the manner of studying the science of grammar.

"The grammar of a language is a set of rules and observations, directing to the proper use of the sorts of words comprising that language. These rules are founded on the general usage of good writers, and after this usage is ascertained, it is customary for those who are desirous of speaking and writing correctly, to be uniformly guided by it.

"Considered as a science, grammar has for its object those principles on which it is founded. *Scientific* grammar discusses the grounds of the classification of words, and investigates the reason of those procedures which the *art* of grammar lays down for our observation." Grammar as an art, refers only to particular languages, and in this light we shall consider it in commenting on the manner of teaching it.

On the utility and importance of the study of grammar, says a late writer, and the principles of composition, much might be advanced, for the encouragement of persons in early life to apply themselves to this branch of learning.—As words are the signs of our ideas, and the medium by which we perceive the sentiments of others, and communicate our own; and as signs exhibit the things which they are intended to represent, more or less accurately, according as their real or established conformity to

those things is more or less exact, it is evident, that in proportion to our knowledge of the nature and properties of words, of their relation to each other, and of their established connexion with the ideas to which they are applied, will be the certainty and ease, with which we transfuse our sentiments into the minds of one another; and that without a competent knowledge of this kind, we shall frequently be in hazard of misunderstanding others and of being misunderstood ourselves. It may indeed be justly asserted, that many of the differences in opinion amongst men, with the disputes, contentions, and alienations of heart, which have too often proceeded from such differences, have been occasioned by a want of proper skill in the connexion and meaning of words, and by a tenacious application of language. One of the best supports, which the recommendation of this study can receive, in small compass, may be derived from the following sentiments of an eminent and candid writer on language and composition. "All that regards the study of composition, merits the higher attention upon this account, that it is intimately connected with the improvement of our intellectual powers. For I must be allowed to say, that when we are employed, after a proper manner, in the study of composition, we are cultivating the understanding itself. The study of arranging and expressing our thoughts with propriety, teach to think, as well as to speak, accurately."

When we consider the nature of language, and the paramount necessity of *understanding* it, we are at once, led to assert that one strong reason, why it is so little *understood*, is, because its teachers and propognders are either totally deficient in its knowledge, or have buried it beneath a mass of rubbish that is only calculated to obstruct grammatical improvement. It is generally a scarecrow to children, and from not possessing the science, many parents, nay even teachers, condemn or undervalue it, *condemnunt quod non intelligunt*, and often substitute in its place, and of the useful sciences, a superficial knowledge of arithmetical calculation, and the acquisition of an *elegant hand writing*.\*

The inefficient manner in which English grammar is usually taught is really astonishing; very few of those who pretend to teach it being able to distinguish one part of speech from another. The general method is, if it deserves such a title, to commit it to memory only; or if a few exercises are written, they are almost always corrected by the teacher, who himself is frequently unable to give any other reason

\* Dr Blair.



for the corrections he makes, than, that the *words do not read well*. Yet a part of every day, during the whole time of the pupil's continuance at school, is devoted to it which is consequently so much employed to no purpose. He learns sentence after sentence, page after page, but he merely acquires *words* without explanation; and should he become so perfect as to be able to repeat from the beginning to the end of the grammar, without the omission of a single letter, he would be little more acquainted with the subject than if he had never seen the book. It would be as reasonable to expect him to become an expert arithmetician by learning the rules of arithmetic without performing a single operation, as to become a grammarian by merely committing the grammar to memory. We should never attempt says a court writer to get the words of grammar merely by rote. Whoever falls into this practice soon begins to esteem the powers of memory more than those of reason; and the former are despicable indeed when compared to the latter. It is a mode of teaching which makes dunces. The learner gets his lesson; that is to say, he repeats the *words* of it; but as to its *sense* and *meaning*, he seldom has any understanding. The operation is sometimes, for what reason we know not, called getting a thing *by heart*. It must, we should think, mean by heart; that is to say, by *hear it*. That a person may get and retain and repeat a lesson in this way, without any effort of the mind, is very clear from the fact, of which we have daily proof, that people sing the words and tune of a song with perfect correctness, when at the same time they are most seriously thinking and debating in their minds about matters of the greatest importance to them\*.

To teach the principles of grammar with proper effect requires a simple, natural and methodical plan. This we have endeavoured to strike out in the American school class books. In our practice, we uniformly commence teaching our pupils by *oral instruction* before we give them the words to learn. This we consider important, as they comprehend our meaning and remember the words in the text more easily. Children always pay more attention to what we say, than to the meaning of the words in the book. This every person knows who has had any experience in teaching. "We do not say, nor even insinuate, that children will *comprehend* every thing that is said to them on these subjects, however clearly they may be explained, nor do we believe that they will *remember* every thing; and yet, we do not hesitate to say, that what is spoken to them will have a very good effect. How often has a sermon made a lasting impression on our minds, though perhaps in a short time after it was delivered, we were incapable of repeating a single

sentence that was uttered; but we remember the sentiment."

And may we not infer from this, that a similar impression made on the minds of a class of pupils, will have a similar effect, and prove a lasting stimulus to action? Even supposing their alacrity to abate, as it no doubt will, it is easy to renew the impression from which their former ardour sprung. They may with success be sometimes reminded of the grand object they had in view, when they commenced this important study. How much they have already done, may at times be noticed with good effect; and what they have still to do, may be represented either as easy or very important; it may be soon done; or, the doing of it will render them first rate scholars. In short to keep them in *good spirits*, which is of itself an object of no inconsiderable moment, something may be said with advantage, both respecting the past and the future. The teacher, however, ought to *show* the utmost readiness to render every thing as easy and intelligible to the scholar as possible. This will convince him that his teacher is in earnest, and deeply impressed with a sense of the vast importance of a study which he so diligently recommends to his pupils.

Book lessons, at first, are very tedious to children, besides a multiplicity of words, not explained by the teacher or understood by the learner, clogs and perplexes his understanding. Perhaps there is not a greater fault in the generality of school books than the verbiage of which they are composed. Complex and profuse definitions† have been sought after

† A treatise, called Systematic education, written by the Rev. W. Shepherd, Rev. J. Joyce, and the Rev. Lant Carpenter, LL. D. has the following observations on Mr. Murray's works. We would premise, that in the AMERICAN SCHOOL CLASS BOOKS, which are the result of many years experience in teaching, we have made Mr. Murray's grammar the basis of ours. We have, however, endeavoured, to avoid the defects pointed out by these writers, and by many of the best European reviewers and instructors. We have in the compilation of our own, consulted every grammar, that has made any improvements on Murray's, (and several have appeared in England) and we are much rejoiced, that the emendations and improvements which we have made, meet the decided approbation of our literati, and the most judicious instructors in every part of the United States. We say this, and we have reason, because wherever the American school class-books are known, teachers have introduced them into their schools; and the calls upon us for a supply of the whole series, are frequent and heavy.

"We know," say those authors, "no better elementary work on grammar, than Lindley Murray's. He has, indeed, in some instances, burdened the learner with unnecessary additions to the simplicity of the English language; and, in our opinion, there is still room for improvement in his practical directions, and more especially in his arrangement or classification. We would have the English language taught as it is, not fettered with restraints derived from languages in which there is a

\* Cobbett's Grammar.



more than brevity and simplicity; but these many consider as constituting the excellence of all books for instruction. Many persons think, that children acquire *ideas* in proportion to the words they repeat, but nothing is farther from the truth; they mouth the words, and that is all. We have known children to repeat a hundred lines by *heart*, without being able to give one single idea of the author's meaning. "When the fond parents of an eighth wonder of the world call him forth into the middle of the parlour to repeat to their visitors some speech of a play, how angry would they be, if any one were to tell them that their son's endowments equalled those of a parrot or a bull finch," and, yet these very parents estimate their children's progress solely by the words they can repeat. Such is the rage for *word spouting*, that any *London cockney* who can mock the *strolling*

*players* or sing the cries of London, is cried up to be a modern Cicero. But, we believe that sensible and well educated parents, and we have the happiness to know many such, put a greater value on a solid grammatical knowledge of our language, and a chaste style of composition and reading, than on the recitation of passages not understood, or on the disagreeable, unnatural and disgusting habit of *mouth-ing* which is substituted for solid learning in places of education.

We are aware, that these observations are as applicable to other branches of instruction as to grammar, and therefore, we make them with the more freedom, and sincerely hope that they will be taken in good part by those who have hitherto been inattentive to these and other remarks, which will readily occur to those who give themselves the trouble of reflecting on the subject.

Let none say that these things are trivial; for whatever tends to make education less irksome to children is of considerable value; and whatever tends to make them think or reason on a subject; whatever tends to excite in their minds a love of learning, which, by becoming general amongst all ranks in society, tends to improve the moral faculty and raise the national character, must be of the highest importance. And should not every teacher endeavour to contribute to the accomplishment of an object so great in its consequences, and so honourable to himself?

Parents and teachers do much to promote the increase of knowledge and virtue among the rising generation, and were they more closely to unite their efforts, they might do still more. While the former are rigorously engaged in teaching the principles of language and science in public, the latter in private besides seconding the exertions of teachers, by holding them up to their children as objects of esteem, might aim more immediately at the improvement of the heart, while teachers in their turn, might aid parents by infusing into the young and tender mind, the first principles of religion and morality. Much depends on cultivating proper habits and dispositions in children, and giving their minds a proper direction at first. This is all that man can do.—God alone can renovate the heart.—

We further observe, that every word in the grammar which has the least appearance of difficulty should be explained and brought down to the learner's comprehension. The more familiar the subject is rendered, the more readily will the child take an interest in it. All the words, such as *quality, quantity, possession, contingency, futurity, rule, &c.* the definition of a *noun*, an *adjective*, a *verb* an *adverb*, &c. should be explained; and, the meaning be drilled into the mind of the pupil by varying the explanation. It is necessary to make him as well acquainted with the nature of the different parts of speech as possible, for parsing entirely depends on

great variety of flexion: and we wish to see *practical* grammars constructed upon correct *scientific* principles; though it may not be expedient to bring those principles too early in view. The young should have as little as possible to unlearn.—Nevertheless, as a practical guide to the actual usages of our language, Mr. Murray's grammar seems to stand unrivalled, and without paying too much attention to those parts which he classes under *Etymology*, his *Syntax* will afford a variety of important and valuable observations, directing to the proper mode of writing and speaking. It will be found of the greatest advantage to those *who may have neglected this branch of education* (adults not pupils) to write his exercises on *Syntax*, carefully attending, as they go along, to the rules and observations on which they are founded: and if they have no competent assistance to enable them to ascertain the propriety of their corrections, the *Key* will generally prove an excellent guide. We would recommend it to them, however, never to consult the *Key*, till they have themselves done their best, by the aid of the Grammar merely.—At the end of the exercises on *Syntax*, are some rules which are very useful on punctuation and the qualities of style. These may, with great benefit, be employed in the same way; but we can by no means recommend the use of his exercises on Orthography. Their direct, and, we think, necessary tendency, is to confuse the recollection of the visible appearance of words; and thereby to lessen, instead of increasing the facility and accuracy of spelling. To acquire correctness in orthography, the best way is to write from memory or from dictation, or to write translations from other languages: to employ a good dictionary, (Walker's for instance) in all cases of doubt; and which will be found very beneficial, to keep a register of all words wherein a difficulty is felt, and often to review those which have been entered. The mere transcribing of passages from manuscript or printed books, will also be found of great advantage, and it is assuredly much better to write from correctly spelt copies, than to correct what is spelt wrong. However Mr. Murray's Grammar will furnish some useful directions in orthography."

We do not approve, in the least, of *False exercises and Keys*, or false orthography for the use of scholars: they encourage idleness, inattention and error, every good instructor would reject them.



his ability to make this distinction. The Rules of Syntax cannot be understood, nor the exercises in false syntax corrected without a previous and accurate knowledge of the parts of speech, consequently it will be proper to ask him frequently, and in different forms of interrogation, what a *noun* is, and *adjective* is, &c. thus (for example) what part of speech are those words which express the *names* of persons, places and things?—Nouns.—What sort of words are those which are varied by number, gender and case?—Nouns and pronouns. What sort of words are those which express the names of whatever we *hear, see, touch, taste* or *smell*? Nouns.—Several other forms may be used.—What sort of words are those which express the quality of nouns? Adjectives.—What sort of words suffer an increase or diminution of meaning?—Adjectives.—What sort of words supply the place of nouns?—Pronouns.—What sort of words are those which express action, being, or a particular *state* of being?—Verbs, &c.—What sort of words are those which express the state of being or actions of things?—Verbs.—Similar questions may be put respecting *adverbs, prepositions, conjunctions*, &c. This may suffice as a specimen of our method of putting questions to our pupil, but as he advances in grammar, the degree of explanation, and the number of questions, must be regulated by the child's capacity.

To persons who are in the least acquainted with the manners and habits of children, it will be unnecessary to adduce any argument to prove, that their "powers of reason and reflection" are far from being inconsiderable, and require only to be brought into action to be known; and though it must be granted that the memory of a child is susceptible of more rapid improvement than his reason, yet the latter when improved is so superior to the former, that the additional trouble it requires will at last be amply rewarded. In short, though the cultivation of the memory ought by no means to be neglected, yet it ought not to be cultivated at the expense of the nobler part,—the judgment.

"The actions of men," says that acute observer, William Cobbett, "proceed from their *thoughts*. In order to obtain the cooperation, the concurrence, or consent of others, we must communicate our thoughts to them. The means of this communication are *words*; and grammar teaches us *how to make use of words*. Therefore, in all the ranks, degrees and situations of life, a knowledge of the principles and rules of grammar must be useful; in some situations it must be necessary to the avoiding of really injurious errors; and in no situation which calls on a man to place his thoughts upon paper, can the possession of it fail to be a source of self gratification, or the want of it a cause of mortification and sorrow.—Grammar, perfectly understood, enables us, not only to express our meaning fully and clearly, but so to express it as to enable us to defy the inge-

nuity of man to give to our words any other meaning than that which we ourselves intend them to express. This therefore, is a science of substantial utility."

Introductory to the study of grammar, the learner should be taught reading and phrase-making. These have been extensively treated of, in the American School class-books, and the preceding numbers of the Academician; this method of teaching the orthography, meaning and etymology of words is of vast importance in the education of youth. The knowledge of forming derivatives from radicals, and of putting words together so as to form correct sentences, constitute the essence of grammar.\*

#### FELLENBERG'S SCHOOL.

THE following interesting facts have been principally abstracted from the 41st No. of the Edinburgh Review—Facts which deserve the serious attention of teachers, parents and statesmen.—This plan of public schools approaches nearer to what we think will ultimately be considered a correct and permanent one, than any other which has yet been exhibited to the friends of useful and popular education. We hope the time is not far distant, when we shall have a State *Model School* established, to which our citizens may look for an improved and rational system of public instruction.

"At a time, when all men's minds are turned towards the great question connected with the character and support of the poor, with universal education, there is nothing more natural than the first intimation of Mr. Fellenberg's plans should powerfully interest the thinking part of the community.

Mr F. resides in Switzerland, and possesses a small estate about four miles from the city of Bern. The land forms part of a beautiful plain surrounded by hills and interspersed with woods. The house and pleasure grounds are agreeably situated in the middle of the farms. Being naturally of a retired and contemplative disposition, fond of study, and attached to agricultural pursuits, he early in life devoted himself to the praiseworthy objects of improving his estate by his own industry, and of making this occupation subservient also to the improvement of the poor in his neighbourhood.—The distinguishing excellence of Mr. Fellenberg's operations, consists in the practical details which comprise an infinite variety of ingenious methods for economizing his resources, and gaining his end by sure means.

The principal part of the establishment, and that

\* Several observations in this essay are given from memory, from a little grammar, the name of which we have forgotten.



which forms the ground work of the whole, is a farm of about 220 acres, which Mr. Fellenberg has improved with great success, and continues to cultivate himself. It is here that the *poor children* are employed, and this may be said to be the branch to which all the others are more or less subordinate, and with which they have all some connexion. Those other branches are, an academy for the sons of wealthier persons; an agricultural institute, connected with a small experimental farm; and a manufactory of farming machinery and implements.

The academy consists chiefly of patrician families, German princes, besides several young nobles of the nation. These boys are taught every branch of elegant and useful learning, by the most eminent professors.—The method of Professor Herbert of beginning with Greek, and then proceeding to Latin, has been adopted with singular success.—In teaching the sciences, considerable aid is derived from the method of Pestalozzi, which consists of exercising the reasoning faculties more than is done by the ordinary plan of instruction, and in making the process of learning much less a matter of rote. The extreme rigour of Pestalozzi's plan, however, is avoided;—this resolves itself, indeed, into a banishment of all books from the school, and an exclusive reliance upon explanation and examination in the teacher's presence.—Gymnastic exercises, including the use of arms, carpentry and gardening are added for filling up the hours of relaxation.—The professors are described as eminent men in their several lines of duty; and their moral character, as well as manners are most particularly attended to in their appointments.—The harmony which reigns among them, and between master and pupil, are the best proofs that Mr. Fellenberg has succeeded in his selection.—The character, the temper, and the habits of the young people, are the paramount object of the superintendence exercised sedulously over them, at every moment of time, but so as never to oppress or annoy.—The methods of preserving this watchful attention, and at the same time leaving the pupil free from any sense of restraint, are among those processes which no description can adequately represent. The great principle seems to be, an appeal to the well known force of *habit*, and a judicious variation of the pursuits and studies, united with a never failing gentleness, and serenity of temper in the instructed and guardian.—Care is also taken to admit new pupils only, when all those upon the establishment are completely trained to the industrious and innocent pursuits of the place; so that this foundation being once laid, the labour of converting the bad habits of the new comers is greatly abridged: they fall more easily into the manners of their companions.

The sum paid for this most excellent and complete course of education, rising from the elements of grammar, to the highest branches of mathematical

and physical science, is only about sixty pounds a year, which covers every expense, except that of clothes. The pupils eat at Mr. Fellenberg's table, which is plentiful, yet simple; they are treated in precisely the same manner, whatever be their rank;—no sect is excluded.

The Agricultural Institution consists of young gentlemen more advanced in years, who have constant access to the farm, as well as to the experimental farm, of about nine acres, attached to their branch of the establishment. They are also instructed in the book learning of the subject, and of the arts and sciences immediately connected with it. They assist at daily conference upon the new methods to be employed,—the improvements of machinery,—in short, every thing that usually occupies an agricultural society; with this great difference, that they are on the spot, where every position may be brought to the test of actual *experiment*, and are surrounded by practical agriculturists, makers of farming implements, and operations on various scales constantly going on. These pupils pay about seventy pounds a year for all expenses, and live at a Chateau about half a mile from the principal residence, where Mr. Fellenberg and the boys are, and where the laboratory, cabinets of natural history, and apparatus of natural philosophy, are also fixed.

The manufactory of machinery and implements is intended to carry on improvements in this essential article, the profits of which will defray the expenses, for it not only supplies the farm but leaves a surplus of machinery and tools for sale; it also instructs both the pupils of the academy in the handicraft arts, the pupils of the institution in those connected with agriculture, and the poor boys in the trades of blacksmith and wheelwright, which may in after life, afford them a livelihood. This rational plan has been attended with deserved success. Many valuable improvements have been made in agricultural machinery.

The most instructing branch, however, of this establishment is that which provides for the education of the poor. The principles upon which it is conducted, are unquestionably sound;—for they are founded in a perfect knowledge of human nature.—The first principle of the system is to show the children gentleness and kindness, so as to win their affections, and always to treat them as rational creatures, cultivating their reason, and appealing to it. It is equally essential to impress upon their minds the necessity of industrious and virtuous conduct which leads to their happiness, and the inevitable effects of the opposite behaviour, in reducing them from the comfort in which they now live, to the state of misery from which they were rescued. A constant and even minute superintendence, at every instant of their lives, forms of course, part of the system, and as may easily be supposed, the elder boys, who are already profited by the care of the master, aid



him in extending it to the new comers, who for this purpose, are judiciously distributed among them.—It is constantly impressed on their minds, that manual labour, in cultivating the ground, is the grand and paramount care which must employ their whole lives, and upon which their very existence depends. To this every thing else is made subordinate; but with this, are judiciously connected a variety of intellectual pursuits. At their hours of relaxation, their amusements have an instructive tendency; certain hours are set apart for the purposes of *learning*; and while at work in the fields, the conversation, without interrupting for a moment the necessary business, is always directed towards those branches of knowledge in which they are improving themselves during their intervals of labour. Besides, reading, writing and ciphering (at which they are very expert), they apply themselves to *geography*, and *history*, and to the different branches of *natural history*, particularly *mineralogy* and *botany* in which they take a singular delight, and are considerable proficient. The connexion of these with agriculture, renders them most appropriate studies for those poor children; and as their daily labour brings them constantly into contact with the object of those sciences, a double relish is thus afforded at once to the science and the labour.—The evidences of design, observable in the operations of nature, and the benevolent tendency of those operations in the great majority of instances, form constant topics of discourse in their studies, and during the labours of the day.—*The Supreme Being is adored in all his works.*

The habits of order which are carefully formed in the boys, and the exact taste for regularity and neatness which they acquire, without ever suffering their other pursuits or amusements in the least degree to interfere with them, form an important item in the system.

The grand principle of this institution is, that every thing must be kept subordinate to the main business of cultivating the ground; that whatever else can be learnt by the boys is so much clear gain; but that, before every thing, they must learn to support themselves by the labour of their hands. Of this occupation, a pleasure is made, by the agreeable course of amusement and instruction with which it is combined.

In addition to these remarks, it is asserted that the establishment has not only supported itself, but has yielded a clear gain of four per cent. upon the price of the land, reckoned at 62*l.* the acre, together with 24 per cent. upon the capital employed in cultivation. It is admitted, even by those who were opposed to the views of Mr. Fellenberg, that his design has succeeded, that the land has been greatly improved, that marshes have been drained, and fine crops made to grow, where weeds only were seen before; that the poor youthful labourers are bettered in their condition, habits, and acquirements;

that every thing goes on with the appearance of a flourishing and improving concern, and that no debts are contracted, nor any difficulties of a pecuniary nature experienced.

The connexion between the seminary for the poor and the Academy for the upper classes, has already been mentioned generally. It consists in the pains constantly taken to inculcate upon each, their relative duties towards the other. The pupils of the Academy, whatever be their rank or wealth, are sedulously taught, that their first duty is to use the means which Providence has placed at their disposal, in a way likely to prove beneficial to the less fortunate members of the community. Indiscriminate charity, alms giving, endowing hospitals, bestowing pensions, and the various other modes of benevolence which are so praiseworthy in their origin and so hurtful in their tendency, Mr. Fellenberg by no means recommends. A charity founded on rational principles, as well as proceeding from amiable feelings, is alone patronized and exemplified in this institution. The real good of the poor is consulted, and not their temporary relief; the task of maintaining them, or teaching them to obtain maintenance by industry and frugality, is prescribed to the rich, and not the momentary gratification of compassionate feelings. This charity may truly be said to bless the giver as well as the receiver, it requires only his care and attention, without diminishing his resources; and the objects of it are rendered valuable to the community, happy in themselves, and grateful to benefactors, who have made them at once *industrious* and *independent*.

We deem Mr. Fellenberg's plans to be just and rational, and in their application, we perceive, by the evidence of facts, that they have been practically successful.—We should be glad to see these *principles*, which are unquestionably both just and practical, received as they deserve, and applied with the necessary variations prescribed by diversities of situation. Mr. Fellenberg has clearly shown how much may be performed for the improvement of the poor, not only without extravagant cost, but with a profit exactly proportioned to the benefit bestowed upon the objects of his care."

[Were this system even but partially acted upon in the vicinities of our large towns, we believe the most satisfactory results would soon be perceived. There are, on a moderate calculation, at the present time, at least one hundred thousand children between the ages of eight and sixteen in the American states that are now receiving instruction in the charitable institutions, and perhaps, out of that number, not one in ten, earns the price of a loaf of bread in a week.—The time which is not occupied in the schools is wasted in *vice* and *idleness*; habits of dependence are contracted, and their parents from their scanty means, are not able to provide for them even the necessary means of life.—But were the



education societies to establish schools on the plan of Mr. Fellenberg, their beneficence would be more judiciously administered; the objects of their care would be more permanently benefitted, and society strengthened by the increase of intelligence, morality and industry.

It is a fact not to be denied, that the lower orders of the community indulge their children in the most systematic idleness, and in the neglect of that prudent economy which alone can secure to them the means of a comfortable subsistence.—The demands upon the charitable and humane, are becoming enormous; thousands and tens of thousands of dollars have been bestowed, and the demand is still increasing, and will continue to increase, till some more efficient system of instruction and economy is adopted. But this may be done by placing their children in situations, where the fruits of their industry, will defray the expenses of their living and education.—A farm of a few acres, in the neighbourhood of New-York, Philadelphia, Baltimore, &c. and divided into convenient *lots or gardens* which might be worked by boys, under the direction of intelligent superintendents, would produce vegetable and other articles for the market, which, when sold would be nearly sufficient to defray the whole expense of the establishment. This, and the pecuniary assistance allowed to the charitable schools in those cities, would place these nurseries of industry and learning on the most permanent foundation.

Although we know that most societies of men, however numerous, wealthy and respectable, are, in general, the last to adopt any improvements, yet we cannot but hope, that some of the most enterprising and judicious among them who are exerting every nerve to place our charitable and literary institutions on the most permanent footing, will, at least, make an experiment of this principle, and establish *model schools* which may be open to visitors and teachers from every section of our country.

Before we close this article, we take the opportunity of expressing our decided opinion, that the teachers of those schools should be men of the most scrupulous moral and religious characters, and well versed in literature and science.—We dissent from the notion, that *if a man have two ideas in his mind, he can teach one of them perfectly to some one else*. This, in a partial point of view, may be admissible, but we think, that a person must be but a *flimsy teacher*, if he has but *one idea to teach his pupils*. We know, nay, we are sure, that a man cannot be too well acquainted both with the natural and physical sciences, to succeed well as an instructor. He must know how to manage his pupil's mind, as a sculptor would a block of marble; skill in the one is surely as necessary as in the other. The accomplished tutor strengthens, and beautifies the soul, the sculptor chisels out the human form.

For the Academician.

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PESTALOZZI,

NO. VI.

IN the preceding number, I brought purposely to view, the interesting fact, that the most celebrated men made known to us by Grecian history, considered the knowledge of *numbers and terms*, or of quantity and extension, as the foundation of all rational education. Superficial knowledge was unknown in ancient times. Every one who understood any thing, understood it well; the mere knowledge of the names of things, or classes of words, without the knowledge of the terms themselves, or the ideas which they signified, was not sufficient. Having stated so much as was adapted to direct attention to that interesting coincidence between the system of instruction pursued by *Pythagoras* and *Plato*, with that of Pestalozzi, I purposely recurred to the first elements of education, inculcated by the mother on the waxen tablet of the opening mind of infancy. The sketches which the circumscribed limits of a periodical essay admit, are not favourable to a full and clear elucidation of the lessons which minutely detail the indispensable preceptory instruction. I possess more than thirty volumes in the German language, containing the details of the instruction, which I would cheerfully give to any institution or publisher, upon the condition, that they should be translated, printed and published. And the gift would be a free offering, nor do I wish to be known in so doing, my only interest in obtaining those works from Europe being to promote knowledge, without any view to pecuniary advantage.

I notice the extent of the publications, for these reasons; first to show that where so many works have already been published, that the method must have made very considerable progress; secondly to show how inadequate a few essays must be to convey a complete idea of the method in all its details; but there is also a third reason, which is to take the opportunity of explaining why it is necessary that the details should be so minute.

As was exemplified in the case of Plato, who dismissed a hearer, because the want of a knowledge of geometry disqualified him from comprehending his lectures; the defective methods, or want of all method in other modes of education, require to be supplied in a method which does not permit any progression of a pupil from one study or one bench to another, until he actually understands the immediate study of the class, in which he has been at exercise. It may appear at first sight, that the voluminous course of thirty volumes, renders the labor of the pupil more excessive than the system of common education, which commencing with grammar and the reading of Virgil, and in arithmetic with the



ordinary treatises, and the elementary mathematics of the colleges, do not exceed eight or ten books in each department. But the modes of practice by the master, the labor of getting by rote, the examinations, the exercises in false and in correct grammar, parsing, &c. are not taken into the estimate of this comparison; but if all these exercises of the common mode were written down, and the hours duly registered, employed by the pupil after the usual hours of school; it would be found that fifty volumes would not contain them. But in the works of the method of Pestalozzi, besides that there is no acquiring lessons by mere rote, the whole of the knowledge which education is intended to convey, is taught in the actual exercises in which the *voice*, the *eye*, the *ear*, and the *head*, are all brought into action, and the understanding, the analytic faculty is publicly exercised in the development of the most minute properties and nature of things: grammar for example is not acquired by getting by heart, as it is called, a given number of lines of Ruddiman's or Murray's Grammar; the study of grammar by the Pestalozzian method is an oral analysis and determination of the classes to which words belong; the nature of the classification, its purpose, and even where there are various opinions or classifications of terms, the nature of those distinctions are investigated and referred to the nature and signification of words as the medium of communication between minds.

In order to render the use and importance of the mother's book more clearly obvious, I shall here give so much of a class of lessons as will show how it is applicable, to the preparation of the young mind with clear ideas, such as it will not have to *unlearn*, as he becomes a youth, or a man; and how very important it is to provide mothers with such precise ideas, on subjects too little attended to, and the want of which tend to retard the progress of the mind. For, it must be obvious, that we know nothing intuitively, and that when we speak, there must be an idea connected with the words we speak, which it is intended to communicate to the mind of the person addressed; and both must understand the signification of the words, in order to be intelligible to each other. Speaking, therefore, prerequisites a power of judgment, and the wants of infancy are expressed, however imperfectly by the articulation of speech.

Those exercises of the mother's book, in which the child is made acquainted with the proper names of his limbs and all parts of his person, are conducted gradually, not like the weary tasks that are imposed on children; but proper names and proper modes of expression are made to supersede the vulgar and often improper names of the different parts of the body; thus the education commences corrected against common error, and made clear and distinct, and more complete, than it is commonly.

But the method does not stop there; out of this

knowledge of the name of the body and members, lessons are formed which develop the uses of the members, and of the senses also. Thus, the various actions of the head, of the forehead and of the eyes, follow out of the knowledge of the names of each part, because it is necessary to know the name of the thing before you can clearly inquire into its power, use, or actions; for if the proper name of the member or part of the member be not known, it must be explained by circumlocution; so that throughout the method, this rule of commencing with the primitive elements, if I may so call them, precedes the illustration of the general application, use or character, according to the most strict analysis.—The following is the lesson on the eyes.

The uses and operations of the eyes.

The eyes may be opened or closed—with your eyes you can see objects and forms—you can wink—you can, in using fire arms, take aim—in seeking to know the planets or stars, you can look through a telescope—or to see minute objects through a microscope—some persons carelessly-nursed, have their eyes askint—the eyes weep when the heart is sorrowful.

Opening the eyes.

You open your eyes when awake, and close them when you sleep—winking is opening and closing the eyelids—there is an involuntary opening and closing of the eyelids, and this is called a twinkling of the eye, and when any thing is done very quickly, it is said that thing was done in a twinkling, meaning that it was done so quickly as to be scarcely perceived in the doing.

You close the eyes when the wind blows dust, smoke, snow, or ashes towards them.

There are several expressions relating to the eyes as glancing, which is looking with a slight and short view at an object—there is leering, and staring; the former a kind of half looking or concealed seeing; the other opening the eyes wide, and looking daringly at any thing.

Of seeing.

Every one that is not blind sees what is before his eyes; some men can see farther and see more than other men. There are whole nations who have never seen the sea—nor the islands in the sea—but all men see the earth, water, stones, trees, plants, men, animals and other common objects.

The child sees itself, and its mother daily;—these objects are the sources of its first ideas; and its first wants are gratified from the fountain of the bosom on which infancy reposes, and the roundness and smoothness of which to the feeling, leave the indelible sensations of affection and beauty which continue through life; the infant sees the habitation in which it is sheltered and reposes, and the objects seen around are appreciated with the delights and innocence of infancy—the furniture of the house, the bed upon which it reposes—the hand that reaches it



bread is seen—the domestic animals, the dog and cat are seen—the windows are opened and the infant sees the blue vaulted heavens—the verdure of the fields or the forests—the garden or the landscape at a distance are seen.

The time is come when the child leaves the arms of its mother to pursue some object which it sees—a butterfly or a flower, a pebble or a fruit; the bird which chirps and hops from twig to twig he sees and he wishes to approach it; he learns the first lesson of disappointment, and the careful mother will not lose the occasion to inculcate, that he must not expect to obtain whatever he sees, and that disappointments will follow the indulgence of unreasonable desires. Every day presents to his sight new objects; he sees the rose and he smells it, and finds a new delight in a newly developed sense; he tastes fruit, and another sense long unconsciously enjoyed breaks upon him; but he finds the taste of a thing bitter, and his eyes learn a lesson to guard his tongue from a recurrence of the unpleasantness; he feels as well as sees, and he compares without knowing it, the sensations of feeling objects that are cold or hot, wet or dry, rough or smooth, and he calls his eyes to keep record of the different sensations of feeling.

Tender mother! hear me and let us counsel—what are your duties! They are the source of your delights! See your offspring, and with what fond delights he sees you, watches the temper of your countenance and the expressions of your lips! It is his music of the spheres, and his voice is heaven to you. Look to him and follow his steps. God has bestowed on you this miracle of yourself—on his infant mind imprint virtue, make his happiness to consist in himself by his prudence and benignity—in his detestation of evil, and charity to his fellow creatures. Never be separated from your child, for all the world is of less regard to you than this part of yourself; his haven is your arms, his home your bosom; catch him whenever he lifts his hands; be it your pleasure to open his mind to innocence and knowledge; enjoy the delight which he brings to reward you for your pains and cares; suffer him not to touch another bosom but your own; the delights of the mother suckling her infant are the greatest rewards of life—his first affections are in thee—his first emotions of gratitude—his first marks of confidence, are developed for thee and through thee!

This, which is but a small part of the lesson will give some fresh ideas of the mother's book, and of the beneficence of mind which characterizes the venerable Pestalozzi.

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#### OUTLINES OF PHILOSOPHIC EDUCATION.

##### *On the elements of Intellectual Culture.*

THE object in our former strictures was to enable the student to form clear and distinct notions

with respect to the offices of the intellectual powers, or powers of acquiring knowledge—and also, with respect to their mutual dependence and co-operation, in the several processes of *sensation, perception, and reasoning*. We are now to explain, in a similar manner, the means whereby these powers may be improved, whether in point of acuteness, strength, or voluntary discretion; that is, by which they may be brought to discharge their several offices, with the greatest readiness and success.

The various manners, for unfolding the intellectual faculties of the human being, from their first or original state, to their highest pitch of improvement, may be brought under these two heads—the education of *nature*, and the education of *art*—the first comprehending those which are provided by the constitution of the *mind* itself, for exercising and strengthening its native *energies*; the second embracing such *methods* as are employed by *parents and instructors*, in the season of youth, or which the individual himself may apply when he becomes qualified to understand the nature and object of *mental culture*. It is, perhaps, impossible to define the exact limits which divide these two sources of improvement, or to point out precisely where the former ends and the latter begins; for, by the secret operation of the laws of our nature, many important steps are gained before we are capable of receiving instruction, or assistance, from those around us. Of this kind are those numerous *intellectual habits*, of which we cannot explain either the origin or progress. We cannot, for example, form any conception of the manner in which the sense of *touch* instructs the eye to judge of distances. Nor can we understand those mysterious lessons, by which the *mind* was first taught to associate external signs with notions and sensations; or those by which it is led to infer the externality of material objects, from the impressions produced by them on the sentient principle within. These lessons do not proceed from the counsels or wisdom of man; but are provided for by the great *Author of nature*, in the constitution which he has given both to the human race and to the organized matter with which they are surrounded: and, thus, as the *Tree*, planted in a proper soil, springs up from the seed, and reaches maturity, without the intervention of care or labour, so do our *mental powers* possess principles of inherent growth and strength, by which, in due time, they arrive at that degree of perfection and vigour to which they are limited upon earth. "*Crescit, occulto velut arbor ævo.*"

Ignorant, to the degree we confessedly are, of the nature of *mind* and of *matter*, we shall never be able, in our present state of existence, to comprehend the precise character of those impressions which *material objects* produce, through the instrumentality of the senses, upon the sentient principle in the soul of man. We know, however, that



external circumstances may be more or less favourable to the expansion of the intellectual powers; that, in one situation the progress is more *rapid*; and that, in another, it is *slower* and more limited. Thus, suppose an individual shut up in a dungeon, from the earliest period of his life, with the means of receiving support within his reach, but altogether removed from the impression of external objects; his intellectual powers, from want of exercise, would remain in a *dormant state*, weak, and hardly capable of excitement. But let the same individual be exposed to the influence of external situation; let him come into contact with the various objects of *desire* and *aversion*—of *pain* and of *pleasure*—of *occupation* and *pursuit*—which occupy the regions of society; in such circumstances, his faculties would instantly make a start forward; he would speedily acquire the use of *reason* and of language, and gradually form those *habits* of mental and corporeal activity, upon which *happiness* and *improvement* so essentially depend.

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#### ON THE EDUCATION OF ART.

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##### IMPROVEMENT OF ATTENTION, &c.

THE education of nature is the basis of that of art. The teacher does not begin the course of education, but merely carries forward that which is already considerably advanced; and, the more closely artificial systems follow the method pointed out by nature, the more likely are they to attain success. But, although much is unquestionably done by nature, there is, notwithstanding, a wide field opened for the industry and skill of the preceptor; for it is a truth founded upon Philosophy, and confirmed by experience, that, as there is one *art* for improving the vegetable tribes, by which they are frequently brought from weakness to strength and beauty, and another for training the inferior animals to obedience and usefulness, so is there an *art* for improving and training the children of men, in mental vigour, and the most valuable acquirements. In proportion, too, as the original and capabilities of the human being surpass those of every other order of created things with which we are conversant in this lower world; so will his progress be greater, in actual improvement, and the fruits more precious which spring from a well directed culture.

Without entering at great length into general views, and without any reference to the plans of mental culture which are pursued in the great mass of schools in this country, we are now to give some account of the system of instruction acted upon in our own; and which consists chiefly in exercises of the intellectual faculties, and in such practical means and helps, as appear best calculated to call forth the

natural powers of the mind—to engraft upon it a facility of acting—to invest it with a ready command of its various resources, and to give full scope to an habitual art of reasoning.

In conducting the analysis of the faculties by which we acquire knowledge, we begin with the considerations of those which come first in the order of nature; as a clear understanding of these, leads, by easy steps, to a certain and distinct perception of the relations and offices of all the rest. We shall here follow the same principles; and consider the effects of culture, as applied, in the first instance, to those powers of the mind upon which the exercise of the others depend; or, in other words, to the formation of those intellectual habits, which serve as the basis of all excellence, in the higher departments of human pursuits and acquirements. Some of our mental endowments may be viewed in the light of handmaids, or auxiliaries to others; but their importance in the system is not to be measured by their apparent dignity; and he that would secure the successful exertion of the whole, must begin with the improvement of those which seem inferior. Indeed, the order of intellectual procedure requires that the means of culture should be applied, in the outset, to those faculties from the operations of which, our first notions and judgments are formed, and, afterwards, to those which are employed in the more complex functions of comparison, deduction and invention; and, as that particular faculty by which the mind directs her various energies, and acquires the knowledge of all the other faculties, ought in this respect, to take precedence of every other, as the subject of culture; we shall therefore begin with the power of attention.

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#### ON THE IMPROVEMENTS OF THE FACULTY OF ATTENTION.

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We state explicitly, that, by the faculty of attention, we mean the intellectual power of notice, whether directed to external objects, or to objects of consciousness,—and, by the *habit of attention*, we mean a facility and readiness in exerting that power, acquired, as all other habits are, by frequent repetition of its peculiar act. But we are more solicitous about giving instruction as to the means of acquiring the voluntary direction of this most important faculty, than with regard to the particular words in which its office may be defined, or its operation described; for, though attention is very frequently summoned, and even commanded, by impression, seizing the mind from without, there can be no doubt that it is susceptible of great improvement, both as to the intensity of its action, and, more particularly, as to the ready use which can be made of it, by the other faculties. Indeed, it would be extremely difficult to explain the means of cultivating the intellectual powers of perception, memory, imagination, of judging



and reasoning, without a constant reference to the effects of attention; and, on this account, it may be justly observed, that the surest way to attain success in improving the former, is to acquire a voluntary direction of the latter.

The art, then, of acquiring the habit of attention can be learned by those only who are willing and desirous to make the acquisition; and the first step towards realizing their wish, must consist in removing the various obstacles, hindrances, and temptations, which, scattered thickly in the paths of youth, would for ever retard their progress and defeat their object. The diligent student knows well that the variety and constant recurrence of sensible objects exert a powerful influence in distracting his attention, even when he most endeavours to fix and command its operation: he will therefore, in his hours of study, remove himself as far as possible from the reach of an influence so dangerous and so seducing; he will quit the "busy haunts of men;" withdraw to retirement and silence, and thus preclude, at least to a certain extent, those solicitations which arise from external things. He will avoid all circumstances which would steal away his attention, or, what is not of less moment, prevent the strenuous and undivided application of it.

But the disturbing causes are not all from without: the student has also secret enemies to encounter from within, who follow him into the deepest solitude. Memory, the faithful repository of his past pains and pleasures—imagination, the ready instrument for anticipating those which are to come—are ever active in withdrawing his attention from the proper subjects of his study. To these may be added many hidden causes of restlessness, fretfulness, and impatience, which cannot so easily be brought to account, and yet harass the mind, and unfit it for exertion. From whatever source, however, and in whatever shape the impediments to attention spring up, the student must endeavour to throw them off, with spirit and determination; and, if they should not yield to his first efforts, (as it is probable they will not), he must redouble his exertions, and increase his watchfulness, in order to secure a decisive victory; for success in this matter, becomes less attainable in proportion to the time the conflict is delayed. The stream which may be kept within bounds, near its source, gathers strength as it advances, and may ultimately break down every opposing barrier.

To this sort of negative preparation for study must be added certain endeavours, of a more direct tendency, for acquiring the command of this valuable quality of mind. The student should be brought to observe, read, hear, and compose his exercises with attention; he should exert attention in all the pursuits connected with the business of the class, and in all the more general occupations by which knowledge or science is acquired.—Nothing important can be done or attained without close and stren-

uous application; but, to encourage him in this necessary labour, it is right to assure him that it will become, every day, less irksome—that he will soon experience an increase of power, not only in the exercises of this particular faculty, but of all the other faculties of his mind—that his command over his attention will be so greatly enlarged by habit, that he will be able to direct it to whatever subject he may choose; to continue it intensely as long as the subject may require it; and to transfer it from one subject to another, as often as such a transference may be necessary. Nor will there ever be wanting a sufficient variety of occasions on which to exercise attention. Wherever the student goes, he will find materials for observation; every book he reads in the course of his studies, will supply him with matter for reflection; every lecture he hears, and every exercise he performs, will require concentration of his faculties, and demand from him different degrees of attention. In short, as this property of the mind must accompany every exertion of its other powers, so every act and habit, regularly performed, has the effect of improving attention, and of adding to its natural vigour.

We impress upon the minds of our pupils, that their success, in the pursuit of knowledge, depends in a great measure, upon the steadiness and regularity with which they can bring their faculties to bear upon every particular subject; that the power of attention is the *foundation of the art of study*; that it shortens the process of investigation, sweetens the labour of the closet, and communicates both vigour and readiness to every intellectual energy.

Hitherto, we have been engaged in explaining the means of acquiring the habit of attention, in as far as these means depend on the voluntary efforts of the student: there yet remains to be noticed the assistance which may be reasonably expected from the teacher. This, as might be anticipated, will be confined to the means which he possesses of stimulating to exertion, of rousing ambition, of kindling EMULATION, and of occasionally touching the sense of shame. In the improvement of their natural talents, he can bestow nothing but what he derives from themselves. The treasure with which he labours to enrich them, is in their own possession; and all he can do is to present motives strong enough to induce them to realize it, and to turn it to *advantage*. The ornament of learning, and the dignity of science, cannot be transferred from one man to another: they cannot be inherited; THEY CANNOT BE BOUGHT WITH MONEY; nor can they be bribed by favour. The tax of labour which is imposed upon every great and noble acquisition, must be paid by the individual who aims at it. The teacher, therefore, does not promise such assistance as will exempt from toil: he merely endeavours to awaken resolution, and to sustain perseverance. He watches the favourable moment to spread before the ingenuous minds of



youth, those views and motives which are most likely to touch the springs of action. The rewards of industry may sometimes appear remote or uncertain, and, seen through that unfavourable medium, their efficacy, as a stimulus to application, cannot fail to prove both weak and inconstant; but the atmosphere through which they are viewed, may be often rendered pure and transparent, by the aid of a vigorous imagination; and the independence or distinction which is longed for, may be brought so close upon the eye, as to rival the impressions of present actual existence, and thus become the predominant motive of exertion, in the mind of the aspiring student. If the sanguine possessor of a lottery ticket, who may not have, even the chance of one to a hundred thousand, can so easily anticipate future events, realize fictitious scenes, and gratify himself with the imaginary treasure of the highest prize; why should not the fancy of a student be invited, upon proper occasions, to wander amid those happy regions, in which he hopes one day to dwell; and thus to draw, from the rich stores of Hope, a powerful solace for the fatigues and anxieties of the passing hour.—Nor is it the imagination only of his pupils, to which the teacher may sometimes successfully address himself: he may likewise appeal to their reason and their sense of duty. Every thing great and good may be brought within their view, as the object of a modest and rational expectation.—The improvement of the highest and noblest powers of intellect—the possessor of knowledge, taste, and eloquence—the enviable privilege of being useful—and the respect and affection of wise men. The secret thoughts of the students, may without the offence of inquiry, take possession of such situations in life, as are most congenial to their taste, or suited to their talents, and fancy themselves the legislators, philosophers, heroes, orators, poets, and statesmen, of future times; or, as the venerable servants of God, in their high capacity of dispensing knowledge, comfort, and happiness, to individuals, to families and to nations.

#### ON THE IMPROVEMENT OF THE FACULTY OF MEMORY.

THE improvement of the memory depends more upon its exercise than upon any rules of art. Indeed, frequent and regular exercise, on proper subjects, comprises all that can be recommended in the form of *precept*, relative to the *culture* of this important faculty.

The memory in children is weak and unretentive, extending only to the few objects which produce marked sensations of *pleasure* or of *pain*. It receives, however, additions every day, and gradually becomes able to bear the *burden* not only of remembering a great variety of facts, but likewise the names or signs, by which they are made known: thus con-

tinually enlarging its powers in proportion as the field of knowledge is opened and extended. In due time, all the words, or signs, of the vernacular tongue are remembered; and, after our own language has been acquired, the memory, even in its ordinary condition of vigour and improvement, so far from being oppressed with its load, seems to become better prepared for further acquisitions of the same nature. When endowed with additional strength, from the maturity of years, and the progress of education, it will comprehend the leading *facts* and *principles* of several sciences, altogether unconnected; and, in some individuals, it proves itself equal to the retention of nearly the whole stock of *literature*, of *history*, and of the more abstract doctrines of metaphysics, or morals.—To return, however, to the main object of this section, it may be observed that the improvement of memory depends, in an especial manner, upon the three following circumstances.

1st.—To give ourselves a just claim to confide in the faithfulness of this faculty, it is essentially requisite to exercise *attention*, whilst the *mind* takes cognizance of objects, whether presented to the senses, or to the intellect: for, in proportion to the intensity with which the power of notice is exerted, the strength and tenaciousness of the memory will be progressively increased. Common phraseology, on this subject, clearly points out the general feeling of mankind, as to the connection between attention and reminiscence. “I remember it well,” we say, “because I gave the closest attention” “I do not remember because I gave little attention.” It has been already shown that a *habit* of attention may be acquired; and so also, may an improved *habit* of remembering.

2d.—The memory may be improved by a judicious selection of those *things* upon which it is to be exercised. As it is impossible to remember every thing, and, as the capacity of this mental endowment, although extensive, is certainly limited, it will greatly assist the processes of recollection to throw off all such matters as are *useless*, *frivolous*, or *unimportant*.

3d.—The memory is very much assisted by arrangement. The *details*, *facts*, and *principles*, which claim the exercise of recollection, are so numerous and perplexed, that, to be able to *recall* them, in their proper relations, and to apply them for the various purposes of arrangement and illustration, it is absolutely necessary to class them under several heads, and to connect them with leading associations. Indeed, the different expedients now recommended, as being completely within the reach of *practical discipline*, all proceed on the well known principle, that the power of reminiscence is enlarged by strengthening the bond of association among the several parts of our knowledge; particularly among those which happen to have a common basis, or which bear upon a common object.



## ON THE CULTURE OF THE IMAGINATION.

THE faculty of imagination, like most others, is in a constant state of *action*, necessarily implies the notion of culture and improvement. In very young persons, too, its efforts are weak, and its combinations unsteady; but, as the range of knowledge enlarges, and the number of ideas is increased, its growing power makes itself manifest in the vivid reproductions which it places before the mind, and in the boldness of its varied vocations. When Philip planned the conquest of Greece, or when Scipio and Polybius anticipated the destruction of Carthage, their imaginations must have been strong and steady enough to present, before the eye of their minds, extensive combinations of distant events respecting the relative state and condition of those nations and the various probabilities which fell within their view. Their imaginations could not have performed for them this office, when they first began the study of politics—When Sir Isaac Newton first began the study of Astronomy, he would probably find it extremely difficult to combine the revolutions of the earth and moon, in their orbits round the sun; but, in process of time, his imagination would, with the utmost ease and steadiness, place before him the whole *Solar System*, in the order of the relative distances, magnitudes and dependencies of the several planets which compose it. When the celebrated Mr. Burke, too, at the very time when the greatest part of the learned men in Europe were rejoicing at the pleasing prospect opened by the French revolution, foresaw the confusion, anarchy and bloodshed, which followed so hard upon it, his imagination must have held up to him a long train of events, linked together as a *cause* and *effect*, and must have manifested a degree of energy to which, in the early period of his life, it would have proved totally inadequate. It is, therefore, very obvious that there is a *gradual progress* in the developement of this faculty, and, consequently, that there is a fair field spread out, for the application of culture.

It is well known from experience, that the activity and consequent improvement of the imagination depends not a little upon the character of the objects with which it is first occupied. The *great*, the *sublime*, the *beautiful*, the *new*, and *uncommon*, in external nature, are not only striking and agreeable in themselves, but, by association, these qualities powerfully awaken the sensibilities of the heart, and kindle the fire of youthful imagination; whereas, there are certain objects so *tame*, and pursuits so *ignoble*, amidst which the *early years of life* are sometimes doomed to be spent, as neither to have produced one impression, nor excited one train of thought, which could ever afterwards enter into the conceptions, or aid the fancy of the painter or the poet. If, therefore, the student shall permit objects which are

mean, low and sensual, to usurp possession of his mind; if the books he reads, and the studies he pursues, are contaminated with gross ideas, he has no right to expect that this *omnipotent faculty* shall ever draw from the polluted treasure of his memory, any thing noble, useful, or praise-worthy; or that his name shall ever be enrolled among those who have delighted, instructed, and honoured their native land and the world at large. "Out of the fulness of the heart the mouth speaketh."

But the imagination is not only improvable in point of vigour and activity; it likewise admits of culture, in respect of regularity and chasteness. No faculty is naturally more irregular and rambling in its motions, or demands more loudly the controul of a governing power. Whilst we are awake, indeed, it is kept within some bounds by the presence of external objects, and by the impressions derived from them, through the medium of the senses; but, in a dream, these sentinels being off their guard, we have sufficient experience of its eccentric flights, and its fantastic combinations. The first efforts, too, of men of genius, in works of imagination, may be compared to the curvettings of an unbridled colt, which scampers over the fields, spurning all constraint, till its strength is exhausted: nor is it until experience, with its usual accompaniments of improved knowledge, and enlightened taste, has tamed the impetuosity of youthful feelings, that the faculty now under consideration, becomes subjected to those regular movements of reason, sensibility, and passion, to which we owe the many fine specimens of Poetry, Eloquence, Statuary, and Painting, that adorn the brighter eras of civilized society.

These facts being admitted, it naturally occurs as a rational inquiry, whether there might not be constructed such a scheme of discipline, and instruction, as would invigorate and call forth, in regular and systematic exercises, that latent power of *imagination*? From what has been said above, it can be no longer doubtful that many of the first steps, at least, are within the reach of a well adjusted education; and, at all events, it cannot be maintained that the company, conversation, books, and studies of young people are of no avail, in influencing their general taste, and in determining the bias of fancy.

From certain varieties which no doubt subsist in the original constitution of these powers, from *early habits*, and particular associations, the imaginations of some persons may be more early directed to sensible or visible imagery than to other trains of thought—but in all cases, the imagination, the active instrument of re-production, is within the reach of culture, when applied properly, and at a proper season. Though it be true that great poets are distinguished by original differences of activity and strength in their flights of imagination, and true, also, on the other hand, that no degree of labor, or of industry can raise a weak or feeble imagination to



the highest degree of poetical genius; still, it may be maintained that, by seasonable culture, this power can be made capable of greater efforts, and invested with higher qualities, than could arise from the mere natural and improved endowments.

We close these remarks, with some observations on the happy effects resulting from an improved imagination, on the intellectual and moral powers of the human mind; particularly as connected with vivid anticipations of futurity; with the honourable rewards of virtuous industry; and with the deep disgrace attending idleness and vice. Could the teacher conduct the imagination of his pupils, with clearness and force, into those distant periods when they will exhibit the proofs, and experience the effects, of a good or bad education; could he make them see now, as clearly as they will see hereafter, the respective consequences of *diligence* and *perseverance*, and of *neglect* and *sluggishness*, on their fortunes and characters in the world;—could he show them the attentive and ambitious student, whose example he now recommends to their imagination, outstripping them in the path of distinction and credit; realizing the objects to which they had faintly aspired—*Loved, admired, and respected*; whilst they pass on, unnoticed, in the crowd of vulgar characters;—could he bring home such things to their imagination, it is next to impossible, but that such impressions must be produced, as would rouse the most careless to a hearty and determined execution.

#### ARITHMETICAL AND MATHEMATICAL DEPARTMENT.

##### OF FRACTIONS.

*Continued from Page 304.*

ADDITION and Subtraction present no difficulty, when the fractions upon which these operations are to be performed, have the same denomination; for since they express only parts of the same denomination and consequently of the same magnitude, they may be added and subtracted exactly as if they were units, remembering, however, to mark in the result the denomination of the parts of which it is composed.

It is evident, for example, that 2-11 and 3-11 make 5-11, since 2 quantities and 3 quantities of the same kind, make 5 quantities of that kind, whatever it may be.

In the same manner, the difference between 3-9 and 8-9 is 5-9, since the difference between 3 quantities and 8 quantities of the same kind, must be 5 quantities of that kind, whatever it may be.

The conclusion from this is, that, *in order to add or subtract fractions having the same denominator, the sum or difference of the numerators must be taken, and the common denominator given to the result.*

The addition of Fractions frequently leads to results greater than unity. If, for instance 4-8 were added to 7-8, the sum would be 11-8; this expression indicates 11 parts of which 8 together compose an unit, and is equal to three eighths of an unit more than unit or 1, 3-8.

Generally every fractionary expression of which the numerator exceeds the denominator, contains one or more units, or a whole number; and the whole number may be separated by dividing the denominator into the numerator: the quotient gives the whole number; and the remainder is the numerator of the fraction to be joined with it.

The expression 307-53 for example, designates 307 parts, 53 of which compose an unit; the number of units then, in the quantity represented by this expression, are equal to the number of times that 307 contain 53, or performing the division, the quotient is 5 and the remainder 42: these 42 then, are fifty thirds of 1: thus, instead of 307-53 may be written 5, 42-53.

It might be useful to return from the expression 5, 42-53 in which the whole number is exhibited and which is composed of two different parts, to the primitive expression 307-53, which is called *reducing a whole number to a fraction*.

To accomplish this, the whole number must be multiplied by the denominator of the fraction which accompanies it; the numerator must be added to the result, and the denominator of the same fraction given to the sum.

Thus, the whole number 5 must be changed into fifty thirds, which is done by multiplying 53 by 5, since each unit must contain fifty three parts; the result is 265-53; on joining this part to the second 42-53, there comes out 307-53.

When the proposed fractions have different denominators, the numbers of parts of which they are composed, can no longer be added to or subtracted from each other, since these parts are of different magnitudes; and, in order to obviate this inconvenience, these fractions are made to undergo a transformation which brings them into parts of the same magnitude, by giving them a common denominator.

Let 2-3 and 4-5 be the fractions to be added: if the two terms of the first be multiplied by 5, the denominator of the second, the first will be changed into 10-15; next, if the two terms of the second be multiplied by 3, the denominator of the first, the second will be changed into 12-15; thus two new expressions will be formed having the same value with the fractions proposed.

This operation, which is necessary to the comparison of the respective magnitudes of two fractions, in its substance consists only in seeking for parts of the unit sufficiently small, to be exactly contained in each of those of which the proposed fractions are formed, in order to express them.

It may be seen, in the above example, that the



fifteenth part of an unit exactly measures both 1-3 and 1-5 of this unit, since 1-3 contains 5-15 and 1-5 contains 3-15. The operation applied to the fractions 2-3 and 4-5, would be equally successful, if applied to any other fractions whatever.

In general, to reduce two fractions to the same denominator, both terms of each must be multiplied by the denominator of the other.

Any number of fractions may be reduced at once to the same denominator, by multiplying the two terms of each, by the products of the denominators of all the others; for it is evident, that the new denominators must all be the same, since each is formed from the product of all the original denominators, and the new fractions are of the same value with the former, because nothing has been done but the multiplication of their two terms by the same number.

The preceding rule leads in all cases, to the end proposed; but when the denominators of the fractions given, are not prime to each other, a common denominator may be obtained more simple than it can give, and this denominator is obtained by considerations analagous to those of the former cases. For example, if the fractions 2-3, 3-4, 5-6, 7-8 were given, since all that is necessary in order to reduce them to the same denominator, is to divide the unit into parts which can be exactly contained in those of which these fractions are formed, it will suffice to find the smallest number which can be divided exactly by each of their denominators 3, 4, 6, 8, and it may be found by trying upon the multiples of 3, the divisions by 4, 6, 8, which do not succeed at first upon any number less than 24; that done, there will be no more required than to turn the proposed fractions into twenty-fourths of an unit.

To effect this operation, the number of times that the denominators 3, 4, 6 and 8 are contained in 24 must be successively sought, and the quotients will be the numbers by which the two terms of each fraction must be successively multiplied, in order to bring it to the denominator 24. It will be thus found, that the two terms of 2-3 must be multiplied by 8, those of 3-4 by 6, those of 5-6 by 4 and those of 7-8 by 3; and the fractions 16-24, 18-24, 20-24, 21-24 will be formed. The rule given above, for the reduction of fractions to the same denominator, supposes that a product resulting from the successive multiplication of several numbers is the same, in whatever order these multiplications be performed. This truth, which is usually considered as evident, requires nevertheless to be demonstrated.

It must first be proved, that to multiply a number by the product of two others, is the same as to multiply first by one of them and afterwards to multiply the product resulting, by the other. For example, instead of multiplying 3 by 35, the product of the numbers 5 and 7, the 3 might have been multiplied by 5 and the product of these numbers might after-

wards have been multiplied by 7. This proposition would have been evident, if unit had been taken instead of the number 3; for 1 multiplied by 5 gives 5, and the product of 5 by 7 gives 35, as well as the product of 1 by 35; but 3 or any other number being nothing else than a collection of units, the same effect will be produced upon the entire number as upon each of the units of which it is composed; that is to say, the products of 3 by 5 and by 7, obtained in either way, being in both cases, the triple of the number resulting from the unit multiplied by 5 and by 7, will necessarily be the same. It might be proved in the same way if 3 were to be multiplied by the product of the number 5, 7, and 9, that it would resolve itself into multiplying 3 by 5, then the product found by 7, and this last product by 9, and so on in succession, whatever be the number of the factors.

To show in an abridged method several successive multiplications, such as those of the numbers 3, 5 and 7 among themselves, let us take 3 by 5 by 7.

Now, in the product of 3 by 5, the order of the factors 3 and 5 may be changed and the product remain the same. Hence it follows immediately, that 5 by 3 by 7 is the same as 3 by 5 by 7.

The order of the factors 3 and 7 in the product 5 by 3 by 7 may also be changed, since this product is equal to 5 multiplied by the product of the numbers 3 and 7; we shall then have from 5 by 7 by 3, the same as the former products.

By putting together the three arrangements,

3 by 5 by 7

5 by 3 by 7

5 by 7 by 3

it may be seen that 3 becomes successively the first, second and third factor, and that any one factor might always be so with any two others. This example, in which the particular value of each number has been considered, proves that a product from three factors is never changed by any change in the order of the multiplications.

To make a product by four factors, as 3 by 5 by 7 by 9, the three first or the three last, might (as has been shown above) be arranged at discretion, and thus any one of the factors might be made to pass through each place. On considering afterwards one of the new arrangements, for example this, 5 by 7 by 3 by 9, the order of the two last factors might be inverted, which would give 5 by 7 by 9 by 3, and would put 3 in the last place. These reasonings may be easily extended to any number of factors whatsoever.

#### AMERICAN ATLAS.

In the 12th No. of the Academician, we inserted a notice of the new American Atlas, then in progress, by TANNER, VALLANCE, KEARNEY and Co. Philadel-



phia. We have the pleasure to inform the public, that we have seen and examined the two first numbers of that really meritorious work. These two numbers contain the map of the world, Mercator's projection, one sheet; map of Europe one sheet; map of South America two sheets; map of the state of New-York, one sheet; map of the States of Ohio and Indiana united, one sheet; a map of the two Americas, one sheet; and map of Asia, one sheet.

In point of correctness of material, elegance of execution, and neatness of the merely mechanical formation of these maps, we consider ourselves justifiable, in pronouncing the work, an honour to the present state of science and art existing in our country. We also inform the public, that the projection is entirely, and the material, generally, original. This work will, when completed, form a land mark in the Geography of the United States, and enable future authors to trace with precision, the progressive knowledge of a country whose importance advances with unequalled rapidity. In noticing this Atlas, we are only influenced by a desire of bringing its existence into recollection; its own merits will ensure it the patronage of every man, whose literary taste can appreciate its value, and whose pecuniary means may enable him to aid the efforts of men, whose exertions are enriching the intellectual stores of their country. With the respectability of its authors we are acquainted; and with the great pains taken, and expense incurred by them, to procure recent and accurate material, we are also acquainted;—and can say, that, the work is, as far as the U. S. are concerned, by far the best extant. If its future numbers, answer to what is already done; and we have full confidence that such will be their execution, we do not hesitate to say, that its possession will be an acquisition to the public.

The second No. of the American Atlas, will be more particularly interesting to the citizens of the state of New-York, as the first sheet, is a beautiful representation of their own state.—We conclude this notice, by wishing the authors, and publishers of the American Atlas success, and we are influenced in our wishes, by a conviction that the authors, and work will deserve success, and will amply repay such patronage as may be given by an enlightened public.

*Methods of teaching written language to the Deaf and Dumb, in the American Asylum at Hartford, in the state of Connecticut.*

THE efforts of the instructors have been, and will continue to be, directed to the improvement of the pupils in written language. Four different modes of communication, are employed in conducting the business of instruction. The first, on which all the rest are founded, and without which every attempt to teach the deaf and dumb would be utterly vain and fruitless,—is the natural language of signs, orig-

inally employed by the deaf and dumb in all their intercourse with their friends and each other, singularly adapted to their necessities, and so significant and copious in its various expressions, that it furnishes them with a medium of conversation on all common topics the very moment that they meet, although, before, entire strangers to each other, and it is even used by themselves, in a vast variety of instances, to denote the invisible operations of their minds and emotions of their hearts.

The second mode of communication, is the same natural language of signs divested of certain peculiarities of dialect which have grown out of the various circumstances of life under which different individuals have been placed, reduced to one general standard, and methodized and enlarged by the admirable genius of the Abbe de L'Epee and the still more ingenious improvements of his venerable successor, the Abbe Sicard, so as to accommodate it to the structure and idioms of written language, and thus to render it in itself a perspicuous, complete and copious medium of thought, bearing so strong an affinity to the Chinese language of hieroglyphical symbols, that what the profound Mr. Morrison, in the preface to his very elaborate dictionary of the language of that singular people, says of the one, may with exact truth be applied to the other. "To convey ideas to the mind by the eye, the Chinese language answers all the purposes of a written medium, as well as the Alphabetic system of the west, and perhaps in some respects better. As sight is quicker than hearing, so ideas reaching the mind by the eye are quicker, more striking and vivid, than those which reach the mind by the slow progress of sound. The character forms a picture, which really is, or by early associations is considered beautiful and impressive. The Chinese fine writing darts upon the mind with a vivid flash, a force and a beauty to which alphabetic language is incapable. Chinese writing in also more permanent than the alphabetic system, which is ever varying its spelling with the continually changing pronunciation of the living voice. Perhaps the Chinese written language has contributed in some degree to the unity of the Chinese nation." All this, without exaggeration is equally true of the language of the deaf and dumb, when reduced to a regular system so that it differs from the Chinese language, only, or principally, in this respect, that the latter, forms its symbols with the pencil, while the other portrays them by gesture, the attitudes of the body and the variations of the countenance.

The third mode of communication, is by means of the manual alphabet, by which the different letters of our English language are distinctly formed by one hand. This enables the deaf and dumb, after they have been taught the meaning and use of words, to converse with their friends with all the precision and accuracy of written language, and with four times the rapidity with which ideas can be expressed by writing. A person of common understanding can very soon learn this alphabet, and it affords to all who will bestow the trifling pains which are necessary to acquire it, a ready, easy, sure and expeditious mode of conversing on all subjects with the deaf and dumb.

The fourth mode of communication, is by means of writing. This is habitually employed in the school rooms, and by it the pupils are taught the correct orthography of our language, to correspond by letters with their friends, and to derive from books the vast treasures of knowledge which they contain.